Gunter, Jason

From: Nations, Mark [mnations@doerun.com]
Sent: Tuesday, February 11, 2014 9:15 AM
To: Gunter, Jason
Cc: Yingling, Mark; Wohl, Matthew; robert.hinkson@dnr.mo.gov; brandon.wiles@dnr.mo.gov; Ty Morris (TMorris@barr.com); Sanders, Amy B.; Cummings, Mark
Subject: Rivermines January 2014 Progress Report
Attachments: RM_01-14[1].doc; January_Rivermines_Pilot_Test_Samples[1].pdf; 2014-01-28 RM NPDES SS Pace Lab Report.pdf; 2014-01-23 RM NPDES Pace Lab Report.pdf

Jason,
Attached is the January report. Let me know if you have questions.
Mark

THE DOE RUN COMPANY

Remediation Group

Mark Nations
Mining Properties Manager
mnations@doerun.com

February 10, 2014

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
11201 Renner Blvd.
Lenexa, KS 66219

Re: The Doe Run Company – Elvins/Rivermines Mine Tailings Site Monthly Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 56 of the Unilateral Administrative Order (UAO) (CERCLA-07-2005-0169) for the referenced project and on behalf of The Doe Run Company, the progress report for the period January 1, 2014 through January 31, 2014 is enclosed. If you have any questions or comments, please call me at 573-518-0800.

Sincerely,

Mark Nations
Mining Properties Manager

Enclosures
c: Mark Yingling – TDRC (electronic only)
Matt Wohl – TDRC (electronic only)
Robert Hinkson – MDNR
Brandon Wiles – MDNR
Ty Morris – Barr Engineering

Elvins/Rivermines Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: January 1, 2014 – January 31, 2014

1. **Actions Performed and Problems Encountered This Period:**
   a. Between the dates of January 1, 2014 and January 15, 2014, flow through the pilot test was directed in two separate configurations. In the first flow configuration, water from the seepage pond passed through the roughing filter and discharged through the bypass pipe. In the second configuration, flow from the seepage pond passed through the iron filter and discharged into the round tank. From the round tank, it discharged directly into the effluent channel.
   b. Between the dates of January 15, 2014 and January 31, 2014, flow through the pilot test was redirected into one configuration. Flow from the seepage pond was directed through the roughing filter and then into the iron filter. From the iron filter, flow was directed to the round tank and then into the effluent channel.
   c. No overflows of the roughing filter were observed during the period. Increases in headloss due to sediment buildup were observed, but this was alleviated by opening system valves.
   d. Continued collecting analytical samples from the pilot test two to three times per week. Samples were taken from the seepage pond (system influent), the ZVI filter effluent (RMP-Polish). Samples of the roughing filter effluent (RMP-Rough) were not acquired due to frozen conditions and low water surface elevations.
   e. Continued to take analytical samples from the seep pond effluent and the western treatment pond effluent to monitor the metals reduction of the treatment pond.
   f. Flow through the seepage ponds was measured at 172 gallons per minute on January 15, 2014.
   g. Flow to the east treatment cell remained off throughout this period.

2. **Analytical Data and Results Received This Period:**
   a. Dissolved zinc concentrations in the polishing filter effluent ranged between 11.05 mg/L and 17.16 mg/L.
   b. Total zinc concentrations in the polishing filter effluent ranged between 10.08 mg/L and 17.17 mg/L.
   c. Total iron concentrations in the polishing filter effluent ranged between 0.018 mg/L and 0.198 mg/L.
   d. Total suspended solids concentrations in the polishing filter were non-detect in all samples.
   e. During this period, water samples were collected from just upstream of Old Missouri Highway 32, as well as from upstream and downstream of the confluence of the site discharge with Flat River. The analytical results for this event are included with this progress report.

3. **Developments Anticipated and Work Scheduled for Next Period:**
   a. Continue analytical sampling and field measurements three times a week.
   b. Continue to operate the renovated pilot test.
   c. Complete monthly water sampling activities as described in the Removal Action Work Plan.
   d. Complete air monitoring activities as described in the Removal Action Work Plan.
   e. Continue monitoring the western treatment pond to evaluate the hydraulics and the metals reduction.
   f. Continue preliminary work on a long-term surface water management plan including treatment and disposal/discharge options for the seepage from the tailings pile that is currently treated in the biocells.

4. Changes in Personnel:

a. None.

5. Issues or Problems Arising This Period:

a. None.

6. Resolution of Issues or Problems Arising This Period:

a. None.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 31, 2014

Amy Sanders
The Doe Run Company
P. O. Box 500
Viburnum, MO 65566

RE: Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Dear Amy Sanders:
Enclosed are the analytical results for sample(s) received by the laboratory on January 24, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
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(913)599-5665

CERTIFICATIONS

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60161859001	**RIVERMINES 001**	Water	01/23/14 11:14	01/24/14 08:45
60161859002	**RIVERMINES UPSTREAM**	Water	01/23/14 11:04	01/24/14 08:45
60161859003	**RIVERMINES DOWNSTREAM**	Water	01/23/14 10:49	01/24/14 08:45

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SAMPLE ANALYTE COUNT

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60161859001	**RIVERMINES 001**	EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60161859002	**RIVERMINES UPSTREAM**	EPA 200.7	NDJ	6	PASI-K
		EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60161859003	**RIVERMINES DOWNSTREAM**	EPA 200.7	NDJ	6	PASI-K
		EPA 200.7	NDJ	3	PASI-K
		SM 2540D	JMC	1	PASI-K
		EPA 300.0	OL	1	PASI-K

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Sample: RIVERMINES 001 **Lab ID: 60161859001** Collected: 01/23/14 11:14 Received: 01/24/14 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:19	7440-43-9	
Lead	**3.5J**	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:19	7439-92-1	
Zinc	**15000**	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:19	7440-66-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:10		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**876**	mg/L	100	5.6	100		01/29/14 12:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Sample: RIVERMINES UPSTREAM **Lab ID: 60161859002** Collected: 01/23/14 11:04 Received: 01/24/14 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:21	7440-43-9	
Calcium	**40000**	ug/L	100	10.4	1	01/28/14 17:00	01/29/14 12:21	7440-70-2	
Lead	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:21	7439-92-1	
Magnesium	**25100**	ug/L	50.0	6.5	1	01/28/14 17:00	01/29/14 12:21	7439-95-4	
Total Hardness by 2340B	**203000**	ug/L	500		1	01/28/14 17:00	01/29/14 12:21		
Zinc	ND	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:21	7440-66-6	
200.7 Metals, Dissolved (LF)	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium, Dissolved	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 13:28	7440-43-9	
Lead, Dissolved	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 13:28	7439-92-1	
Zinc, Dissolved	**11.7J**	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 13:28	7440-66-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**34.8**	mg/L	5.0	0.28	5		01/29/14 13:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

ANALYTICAL RESULTS

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Sample: RIVERMINES DOWNSTREAM **Lab ID: 60161859003** Collected: 01/23/14 10:49 Received: 01/24/14 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:24	7440-43-9	
Calcium	**58800**	ug/L	100	10.4	1	01/28/14 17:00	01/29/14 12:24	7440-70-2	
Lead	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:24	7439-92-1	
Magnesium	**29700**	ug/L	50.0	6.5	1	01/28/14 17:00	01/29/14 12:24	7439-95-4	
Total Hardness by 2340B	**269000**	ug/L	500		1	01/28/14 17:00	01/29/14 12:24		
Zinc	**1040**	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:24	7440-66-6	
200.7 Metals, Dissolved (LF)	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium, Dissolved	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 13:30	7440-43-9	
Lead, Dissolved	ND	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 13:30	7439-92-1	
Zinc, Dissolved	**912**	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 13:30	7440-66-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**97.5**	mg/L	10.0	0.56	10		01/31/14 09:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
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QUALITY CONTROL DATA

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

QC Batch: MPRP/26007 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60161859001, 60161859002, 60161859003

METHOD BLANK: 1322792 Matrix: Water
Associated Lab Samples: 60161859001, 60161859002, 60161859003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	ug/L	ND	5.0	01/29/14 12:01	
Calcium	ug/L	ND	100	01/29/14 12:01	
Lead	ug/L	ND	5.0	01/29/14 12:01	
Magnesium	ug/L	ND	50.0	01/29/14 12:01	
Total Hardness by 2340B	ug/L	ND	500	01/29/14 12:01	
Zinc	ug/L	ND	50.0	01/29/14 12:01	

LABORATORY CONTROL SAMPLE: 1322793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	1000	992	99	85-115	
Calcium	ug/L	10000	9800	98	85-115	
Lead	ug/L	1000	1020	102	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Total Hardness by 2340B	ug/L		66400			
Zinc	ug/L	1000	996	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322794 1322795

Parameter	Units	60161839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1010	1010	101	101	70-130	0	10	
Calcium	ug/L	104000	10000	10000	112000	113000	81	84	70-130	0	9	
Lead	ug/L	7.3	1000	1000	991	989	98	98	70-130	0	10	
Magnesium	ug/L	57200	10000	10000	66300	66600	91	94	70-130	1	9	
Total Hardness by 2340B	ug/L	496000			554000	556000				0		
Zinc	ug/L	159	1000	1000	1140	1130	98	97	70-130	1	11	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322796 1322797

Parameter	Units	60161892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1060	1060	106	106	70-130	0	10	
Calcium	ug/L	54.6 mg/L	10000	10000	63500	63600	90	90	70-130	0	9	
Lead	ug/L	ND	1000	1000	950	951	95	95	70-130	0	10	
Magnesium	ug/L	399 mg/L	10000	10000	404000	403000	53	43	70-130	0	9	M1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322796 1322797

Parameter	Units	60161892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Hardness by 2340B	ug/L	1780 mg/L			1820000	1820000				0		
Zinc	ug/L	ND	1000	1000	979	976	98	98	70-130	0	11	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

QC Batch: MPRP/26023
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 60161859002, 60161859003

METHOD BLANK: 1323393
Matrix: Water
Associated Lab Samples: 60161859002, 60161859003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	ND	5.0	01/29/14 13:14	
Lead, Dissolved	ug/L	ND	5.0	01/29/14 13:14	
Zinc, Dissolved	ug/L	ND	50.0	01/29/14 13:14	

LABORATORY CONTROL SAMPLE: 1323394

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	1000	1040	104	85-115	
Lead, Dissolved	ug/L	1000	1050	105	85-115	
Zinc, Dissolved	ug/L	1000	1020	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1323395 1323396

Parameter	Units	60161839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	ND	1000	1000	1040	1050	104	105	70-130	1	10	
Lead, Dissolved	ug/L	4.1J	1000	1000	1030	1030	102	102	70-130	0	10	
Zinc, Dissolved	ug/L	131	1000	1000	1130	1140	100	100	70-130	1	11	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

QC Batch: WET/45839 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 60161859001, 60161859002, 60161859003

METHOD BLANK: 1323386 Matrix: Water
Associated Lab Samples: 60161859001, 60161859002, 60161859003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	01/28/14 16:08	

SAMPLE DUPLICATE: 1323387

Parameter	Units	60161715002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	5.0	5.0	0	10	

SAMPLE DUPLICATE: 1323388

Parameter	Units	60161861002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

QC Batch: WETA/27971 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60161859001, 60161859002, 60161859003

METHOD BLANK: 1323269 Matrix: Water
Associated Lab Samples: 60161859001, 60161859002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	01/29/14 12:14	

METHOD BLANK: 1324929 Matrix: Water
Associated Lab Samples: 60161859003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	01/31/14 09:09	

LABORATORY CONTROL SAMPLE: 1323270

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	99	90-110	

LABORATORY CONTROL SAMPLE: 1324930

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1323271 1323272

Parameter	Units	60161509001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	3570	2500	2500	5990	5980	97	96	80-120	0	15	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALIFIERS

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NPDES MONTHLY (RIVERMINES)
Pace Project No.: 60161859

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60161859001	**RIVERMINES 001**	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161859002	**RIVERMINES UPSTREAM**	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161859003	**RIVERMINES DOWNSTREAM**	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161859002	**RIVERMINES UPSTREAM**	EPA 200.7	MPRP/26023	EPA 200.7	ICP/19907
60161859003	**RIVERMINES DOWNSTREAM**	EPA 200.7	MPRP/26023	EPA 200.7	ICP/19907
60161859001	**RIVERMINES 001**	SM 2540D	WET/45839		
60161859002	**RIVERMINES UPSTREAM**	SM 2540D	WET/45839		
60161859003	**RIVERMINES DOWNSTREAM**	SM 2540D	WET/45839		
60161859001	**RIVERMINES 001**	EPA 300.0	WETA/27971		
60161859002	**RIVERMINES UPSTREAM**	EPA 300.0	WETA/27971		
60161859003	**RIVERMINES DOWNSTREAM**	EPA 300.0	WETA/27971		

Pace Analytical www.pacelabs.com

Sample Condition Upon Receipt

WO#:60161859

60161859

797707743188

Client Name: The Doe Run

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: ~~[illegible]~~ 1/24/14 Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☒ Ziplock

Thermometer Used: (T-239) / T-194 **Type of Ice:** Wet Blue None (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: ________

Temperature should be above freezing to 6°C

Optional
Proj Due Date:
Proj Name:

Date and initials of person examining contents: [initials] 1/24/14

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. Sett Sol
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☐Yes ☒No ☐N/A	10. No Volume for Sett Sol
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☒Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☒No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased):	☐Yes ☒No ☐N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: ________ Date/Time: ________

Comments/ Resolution: Per Amy Sanders, Settleable Solids will be recollected. 1/24/14 JLC

[signature] 1/24/14

Project Manager Review: ________ Date: ________

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical
www.pacelabs.com

Section A Required Client Information:

Company:	The Doe Run Company
Address:	PO Box 500
	Viburnum, MO 65566
Email To:	asanders@doerun.com
Phone: 573-689-4535	Fax: 573-244-8179
Requested Due Date/TAT:	5 - 7 Days

Section B Required Project Information:

Report To:	Amy Sanders
Copy To:	
Purchase Order No.:	
Project Name:	NPDES Monthly (Rivermines)
Project Number:	

Section C Invoice Information:

Attention:	Amy Sanders
Company Name:	The Doe Run Company
Address:	PO Box 500, Viburnum, MO 65566
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER ____

Site Location STATE: MO

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	TSS	Settleable Solids	Sulfate	Cd, Pb, Zn - Total	Hardness	Cd, Pb, Zn - Dissolved	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N	N		
1	Rivermines 001	WW	G			1/23/14	1114		3	2		1							X	X	X	X			N	60161859 BP3U, BP3N 1.5
2	Rivermines Upstream	W	G			1/23/14	1164		2	1		1							X		X	X	X	X	N	BP1U 02
3	Rivermines Downstream	W	G			1/23/14	1049		2	1		1							X		X	X	X	X	N	03
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* 200.8 Total Recoeverable Metals	Larry Hopkins - Doe	1/23/14	1300	Fedex Ground / PACE	1/24/14	0845	0.6	Y	Y	Y
**analyzed within 24 hours with flagged data										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Larry Hopkins

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 1/23/14

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

February 04, 2014

Amy Sanders
The Doe Run Company
P. O. Box 500
Viburnum, MO 65566

RE: Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286 REVISION, REV-1 2/4/14

Dear Amy Sanders:
Enclosed are the analytical results for sample(s) received by the laboratory on January 31, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60162286001	**RIVERMINES 001**	Water	01/28/14 08:45	01/31/14 09:00

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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60162286001	**RIVERMINES 001**	SM 2540F	JML	1	PASI-K

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286

Sample: RIVERMINES 001 **Lab ID: 60162286001** Collected: 01/28/14 08:45 Received: 01/31/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540F Total Settleable Solids	Analytical Method: SM 2540F								
Total Settleable Solids	ND	mL/L/hr	0.20	0.20	1		01/31/14 16:20		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NPDES Monthly (Rivermines)
Pace Project No.: 60162286

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60162286001	**RIVERMINES 001**	SM 2540F	WET/45920		

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Sample Condition Upon Receipt

WO#: 60162286

60162286

Client Name: DRC

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 7977566967 9 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ZIPC

Thermometer Used: T-239 / T-194 Type of Ice: (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 0-6 Date and initials of person examining contents: 1/29/14

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3. Obs 5
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5. Date on container is 1/28/14
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. 5:5
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☑No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☑N/A	
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Per Amy Sanders, collection date and time on COC is incorrect. Correct date is 1/28/14 is 8:45am. JLC 2/4/14

Project Manager Review: MW for JLS Date: 2/1/14

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	The Doe Run Company	Report To:	Amy Sanders	Attention:	Amy Sanders
Address:	PO Box 500	Copy To:		Company Name:	The Doe Run Company
	Viburnum, MO 65566			Address:	PO Box 500, Viburnum, MO 65566
Email To:	asanders@doerun.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	573-689-4535 Fax: 573-244-8179	Project Name:	NPDES Monthly (Rivermines)	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	5 - 7 Days	Project Number:		Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER _____

Site Location STATE: MO

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): TSS	Settleable Solids	Sulfate	Cd, Pb, Zn - Total	Hardness	Cd, Pb, Zn - Dissolved	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			Y/N	N						
1	Rivermines 001	WW	G			1/30/14			1	1									X						N	18914 001
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

6016 2286

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* 200.8 Total Recoeverable Metals	Larry Hopkins	1/30/14		PACE	1/31/14	0900	0-6	Y	Y	Y
**analyzed within 24 hours with flagged data										

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Larry Hopkins					
SIGNATURE of SAMPLER:	Larry Hopkins	DATE Signed (MM/DD/YY): 1/30/14				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007